REMARKS

Claims 1-4 are all the claims pending in the application.

Formal Matters

1. The specification is objected to as containing informalities. Applicant has amended the specification and submits that no new matter has been added. The Examiner is therefore respectfully requested to withdraw the objection.

2. The drawings are objected to under MPEP 608.08(g). Applicant submits herewith a Request for Approval of Proposed Drawing Corrections. The Examiner is requested to withdraw the objection from the drawings.

3. Claims 1-4 stand rejected under 37 CFR 1.75. Applicant has amended the claims to eliminate all informalities and requests the Examiner to withdraw objection from the claims.

Art Rejections

1. Claims 1, 3 and 4 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Morelli et al., U.S. Patent No. 6,236,674 ("Morelli") in view of Bremer, U.S. Patent No. 6,320,879 ("Bremer"). Applicant respectfully traverses this rejection for at least the reasons stated below.

Conventionally, the transition time to switch from a low power state to a full power state required that the actual transition from the low power state to the full power state be delayed until the beginning of the next superframe. Therefore, the time required to transfer the remainder

of a data packet in the low power state largely exceeded the time required to transfer a complete data packet in the full power state. A non-limiting embodiment of the present invention minimizes the transition time incurred when switching between a low power state and a full power state by abruptly interrupting the low power transmission of a currently transferred data packet and transmitting the currently transferred data packet at full power.

The Examiner acknowledges that Morelli fails to disclose, teach or suggest at least the following recitations of independent claim 1:

> transferring data packets from said transmitter to said receiver at low power,
>
> wherein low power transmission of a currently transferred data packet is interrupted, and a copy of said currently transferred data packet is transmitted at full power.

Therefore, the Examiner must rely on Bremer to fulfill at least the above deficiencies with respect to Morelli.

Bremer is drawn to a communication system for interleaving the transmission of telephone rings and digital data *(Col. 1, lines 61-63)*. More specifically, upon detecting a ring signal, a data transmitter is configured to stop the transmission of digital data and to delay the desired transmission of digital data until the ring signal has stopped *(Col. 2, lines 5-10)*. Bremer, however, does not disclose, teach or suggest interrupting a low power transmission of a currently transferred data packet and transmitting a copy of the currently transferred data packet at full power *(paraphrase of claim 1)*. Rather, Bremer simply discloses re-transmitting data after a ring signal interruption.

The Examiner points to Col. 2, lines 11-14 as being equivalent to the above cited recitation. However, the description in Bremer merely mentions that data is retransmitted after a signal interruption. Absent from Bremer is any disclosure or suggestion of transferring data packets from a transmitter to a receiver wherein the low power transmission of the currently transferred data packet is interrupted and a copy of the currently transferred data packet is transmitted at full power.

Without at least such a suggestion, one would not have been motivated to combine the transceiver control with sleep mode, as disclosed in Morelli, with the communications system, as taught in Bremer, to produce the claimed subject matter. Because there can be found in Bremer no teaching or suggestion that meets the above-identified limitations, the combination of Morelli and Bremer cannot reasonably be said to render obvious the claimed subject matter. The Examiner is therefore respectfully requested to withdraw the § 103(a) rejection from independent claims 1, 3 and 4.

2. Claim 2 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Morelli in view of Bremer, as applied to claim 1 above, and in further view of Gibson et al. U.S. Patent No. 6,049,885 ("Gibson").

Claim 2 depends from independent claim 1. The combination of Morelli and Bremer are deficient with respect to claim 1 for at least the reasons stated above. Therefore, the Examiner must rely on Gibson to compensate for the deficiencies of the combination of Morelli and Bremer.

Gibson is directed to an apparatus for allowing a remote node to awaken a sleeping node of a network. Gibson, however, fails to disclose the above identified recitations with respect to independent claims 1. Therefore, Applicant submits that claim 2 is patentable at least by virtue of its dependency. The Examiner is therefore respectfully requested to withdraw the § 103(a) rejection.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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WASHINGTON OFFICE

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PATENT TRADEMARK OFFICE

Date: June 2, 2003

APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

Please replace the first full paragraph on page 1 with the following:

The present invention relates to a method to transit in a communication system from a low power state to a full power state [as defined in the non-characteristic part of claim 1], an arrangement to be used to transit from the low power state to the full power state in a transmitter [as defined in the non-characteristic part of claim 3,] and an arrangement to transit from the low power state to the full power state in a receiver [as defined in the non-characteristic part of claim 4].

Please replace the last paragraph on page 1 with the following:

Such a state transition method and arrangement to perform such a state transition are already known in the art, e.g. from *the temporary document WH-031 submitted on June 29, 1998 to ITU Study Group 15 which is an ADSL (Asymmetric Digital Subscriber Line) forum. This document with reference WH-031 is entitled 'Time Domain Rate Adaptation Based L1 State for C. Lite Modem Power Down Management' and originates from IteX.* In this document, a mechanism for transition between a so called L1 state, a low power/low bit rate state, to a so called L0 state, a full power/full bit rate state, of an ADSL (Asymmetric Digital Subscriber Line) system is described. AS is indicated in paragraph 2 of the cited document, transition between the

low power and the full power state is initiated by transfer of a predetermined [recognisable] recognizable state transition indication, called EOC message. Thereafter, the new state is entered at the beginning of the next super-frame. The transition time to switch from the low power state to the full power state is not [minimised] minimized in the known solution because the actual transition from the low power state to the full power state is delayed until the beginning of the next super-frame. In particular systems such as the known one, wherein data are transferred at a low bit rate during the low power state, the transition time can become significantly large, i.e. several multiples of the time interval required to transfer a super-frame at full power. In communication systems with buffers temporarily storing data, large state transition times imply increased probability for buffer overflow, congestion and even loss of data. If for instance ATM (Asynchronous Transfer Mode) cells have to be transferred over an ADSL (Asymmetric Digital Subscriber Line) network segment, risk of ATM buffer overflow increases if the wake-up time, i.e. the transition time from the low power state to the full power state of the ADSL network segment is large.

Please replace the first full paragraph on page 2 with the following:

An object of the present invention is to provide a method and arrangement for transition from the low power state to the full power state similar to the known one, but wherein the wake-up time to go from the low power state to the full power state is [minimised] minimized.

Please replace the second full paragraph on page 2 with the following:

According to the invention, this object is achieved by the method to transit in a communication system from a low power state to a full power state [as defined in claim 1, an

arrangement to be used to transit from the low power state to the full power state in a transmitter [as defined in claim 3,] and an arrangement to transit from the low power state to the full power state in a receiver [as defined in claim 4].

Please replace the second full paragraph of page 3 with the following:

An additional feature of the transition method from low power to full power state is that a state transition indication is transferred from the transmitter to the receiver before a copy of the currently transferred data packet is transmitted at full power.

Please replace the last paragraph of page 6 which continues onto page 7 with the following:

In the ADSL receiver RX, the state transition indication detector STID monitors the entrance of the ADSL receiver RX when this ADSL receiver RX operates in the low power state. The state transition indication detector STID for example uses correlation techniques to [recognise] recognize the predetermined state from the low power state LPS to the full power state FPS. As soon as the state transition indication detector DET [recognises] recognizes the state transition indication STI, it activates the control unit CTRL and the interrupted symbol detector DET via control signals. The interrupted symbol detector DET detects the incompletely transmitted DMT symbol DMT1 that will be deleted by the interrupted symbol deletion device DEL[.], the control unit CTRL instructs the DMT receiver RXM to enter the full power state FP5 wherein it is able to receive subsequent DMT symbols C_DMT1, DMT2 at full power / full bit rate.

Please replace the first full paragraph on page 7 with the following:

It is remarked that the functionality of the interrupted symbol detector DET and the interrupted symbol deletion device DEL may in an alternative embodiment of the present invention be integrated with the DMT receiver RXM into a single device. Indeed, the detection and deletion of incompletely transferred DMT symbols may be [realised] realized in hardware or in software and evidently can be integrated in the DMT receiver RXM.

Please replace the second full paragraph on page 7 with the following:

It is also noticed that in an alternative version of the current invention, the average transition time from the low power state LPS to the full power state FPS is even more reduced by interrupting transmission of the currently transferred low power DMT symbol DMT1 only if that part of the DMT symbol DMT1 that has already been transmitted has not yet exceeded a certain threshold. Thus, the symbol DMT1 can be transferred at low power. This implementation of the present invention [minimises] minimizes the average wake-up time to go from the low power state LPS to the full power state FPS at the cost of some additional complexity in the ADSL transmitter TX to determine the portion of the DMT symbol DMT1 that already has been transferred and to compare this portion with a certain threshold.

Please replace the first full paragraph on page 8 with the following:

Although it has been mentioned in the introductory part of this patent application, it is [emphasised] emphasized here that to implement the basic idea of the present invention, i.e. interrupting low power transmission of the currently transferred DMT symbol and full power transmission of a copy C_DMT1 of the interrupted DMT symbol DMT1, it is to required to generate, transfer and detect a state transition indication STI. Such a state transition indication

STI helps the receiver RX detect the moment whereon it has to transit from the low power state LPS to the full power state FPW, but must for example not be sent in a system wherein the receiver RX is able to detect the difference between a low power DMT symbol DMT1 and a full power DMT symbol DMT2 and is able to autonomously switch from the low power mode LPS to the full power mode FPS thereupon.

Please delete page 9 in its entirety.

IN THE CLAIMS:

The claims are amended as follows:

1. (Currently Amended) A method [Method] to transit in a communication system [comprising] including a transmitter [(TX)], a communication medium [(CM)] and a receiver [(RX)], from a low power state [(LPS)] to a full power state, said method comprising:

transferring [wherein] data packets [(DMT1) are transferred via said communication medium (CM)] from said transmitter [(TX)] to said receiver [(RX)] at low power [to a full power state (FPS) wherein data packets (DMT2) are transferred from said transmitter (TX) to said receiver (RX) at full power],

[CHARACTERIZED IN THAT] wherein low power transmission of a currently transferred data packet [(DMT1)] is interrupted, and a copy [(C_DMT1)] of said currently transferred data packet [(DMT1)] is transmitted at full power.

2. (Currently Amended) The method [Method] according to claim 1, [CHARACTERIZED IN THAT] wherein a state transition indication [(STI)] is transferred from

said transmitter [(TX)] to said receiver [(RX)] before said copy [(C_DMT1)] of said currently transferred data packet [(DMT1)] is transmitted at full power.

3. (Currently Amended) A state [State] transition arrangement [(STA)] to be used to transfer from a low power state [(LPS)] to a full power state [(FPS)] in a transmitter [(TX)] being adapted to transmit data packets [(DMT1)] at low power when it is operating in said low power state [(LPS)] and to transmit data packets [(DMT2)] at full power when it is operating in said full power state [(FPS)],

[CHARACTERIZED IN THAT] wherein said state transition arrangement [(STA)] comprises interruption means [(IR)] for interrupting transmission of a currently transferred data packet [(DMT1)]and re-transmission means [(TXM)] for transmitting a copy [(C_DMT1)] of said currently transferred data packet [(DMT1)] at full power.

4. (Currently Amended) A state [State] transmission arrangement [(STA')] to be used to transfer from a low power state [(LPS)] to a full power state [(FPS)] in a receiver [(RX)] adapted to receive data packets [(DMT1)] at low power when it is operating in said low power state [(LPS)] and to receive data packets [(DMT2)] at full power when it is operating in said full power state [(FPS)],

[CHARACTERIZED IN THAT] wherein said state transition arrangement [(STA')] comprises detection means [(DET)] for detecting an interrupted low power data packet [(DMT1)], and deletion means [(DEL)], coupled to said detection means [(RXM)] for receiving a copy [(C_DMT1)] of said low power data packet [(DMT1)] at full power.

IN THE ABSTRACT OF DISCLOSURE:

The abstract is changed as follows:

In a full power state [(FPS)], data packet [(DMT2)] are transferred at full power from a transmitter [(TX)] to a receiver [(RX)], whereas in a low power state [(LPS)] data packet s [(DMT1)] are transferred at low power from the transmitter [(TX)] to the receive [(RX)]. To transit fast from the low power state [(LPS)] to the full power state [(FPS)], the transmitter [(TX)] interrupts transmission of the currently transmitted low power data symbol [(DMT1)] and transmits a copy [(C_DMT1)] of the currently transmitted low power symbol [(DMT1)] at full power to the receiver [(RX)].

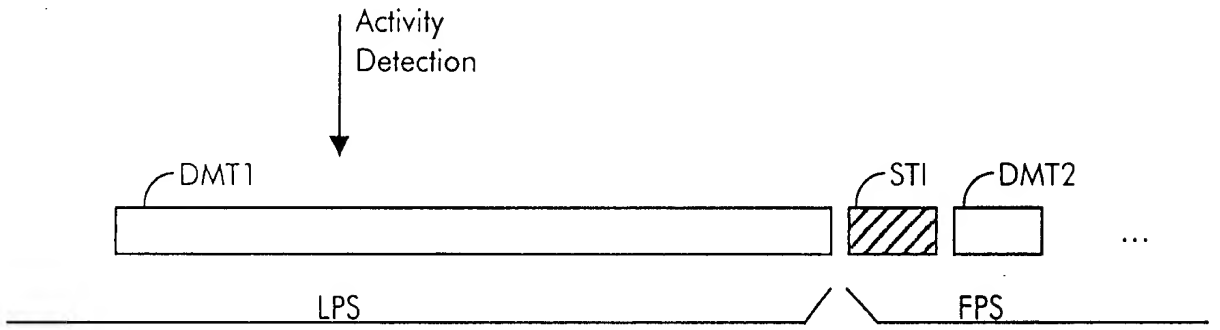

Fig. 2A

Prior Art

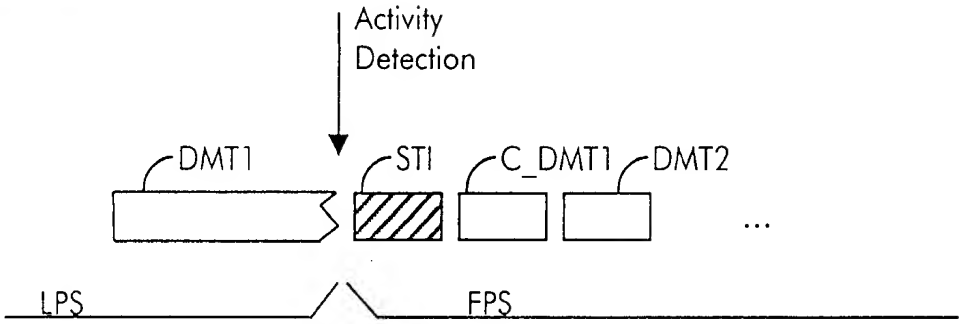

Fig. 2B

Fig. 2